

- 13 -

What is Claimed is:

1. A method of producing a nanoporous carbide-derived carbon composition with a tunable pore structure and a narrow pore size comprising extracting metals from a carbide to produce a carbide-derived carbon, said extracting being performed with a halogen at an elevated temperature so that a nanoporous carbide-derived carbon composition with a tunable pore structure and a desired pore size is produced.
2. The method of claim 1 wherein the carbide is Ti_3SiC_2 .
3. The method of claim 1 wherein the elevated temperature is chosen to produce a desired pore size.
4. The method of claim 1 wherein the elevated temperature is between 200-1400°C.
5. The method of claim 1 wherein the elevated temperature is above 700°C.
6. The method of claim 1 wherein the tunability of the pore size is achieved with 0.05 nm accuracy.
7. A nanoporous carbide-derived carbon composition produced by any of the methods of claims 1 through 6.

BEST AVAILABLE COPY